FAST FACTS
MERCURY

Missouri Department of Health and Senior Services
Hazardous Substance Emergency Events Surveillance (HSEES) Program

Synonyms: Quicksilver

CAS Number: 7439-97-6

DOT Numbers: UN2809

DOT Designation: ORM-B

Exposure Levels

- Mercury can irritate the skin and eyes immediately or shortly after exposure. If a skin allergy develops, very low future exposure can cause itching and a skin rash.
- Exposure to high levels of mercury vapor can irritate the lungs, causing cough, chest pain and shortness of breath.
- Repeated low exposure or a very high single exposure can cause mercury poisoning.
- Repeated exposure (usually more than five years) may cause clouding of the eyes.
- Repeated contact may cause a gray skin color to develop.
- Exposure to 10 mg/m^3* is immediately dangerous to life and health.

Characteristics and Potential Exposures

Mercury is a silvery, heavy, odorless liquid. It vaporizes at just above room temperature. It is used in control instruments (such as thermometers, barometers and switches), in vapor lamps, mirror coatings, blood pressure measuring devices and amalgams. Mercury is also used in making chemicals and electrical equipment. Mercury may also be found in chemistry labs and lab equipment storage areas in educational settings.

Mercury Releases in Missouri

During calendar years 1994-1998, 1,071 HSEES events were reported in Missouri. Of those, 20 events involved mercury. Quantities released ranged from minimal amounts released from broken thermometers to five pounds. Fixed facilities were involved in all 20 of these events. One person was treated for elevated mercury blood levels but suffered no visible short-term symptoms. Six events resulted in the evacuation of 106 individuals from their homes or places of work.

Interesting Events

Four individuals were handling a significant amount of mercury in the living room of an apartment. The mercury spilled on the carpet and had been spread throughout the apartment when authorities were notified. 20 residents of the complex were evacuated for 24 hours, and the affected apartment could not be reoccupied for over one month. One individual who was exposed to the mercury was admitted to the hospital and chelated because of elevated mercury levels discovered through blood tests. The three other individuals could not be located and it was not known if they also had elevated blood levels.

During another event, a sphygmomanometer (blood pressure measuring device) broke at a health care clinic and leaked an unknown amount of mercury onto a chair and carpeting in an examination room. A janitor vacuumed up the mercury from the carpet, then vacuumed the remainder of the three-story facility with the same vacuum.

After the spill was discovered, air monitoring was conducted and levels of mercury were as high as 200 micrograms per cubic meter. (The action level for mercury is 3 micrograms per cubic meter.) The building was evacuated and arrangements were made to clean up the spill and all contaminated areas of the building. Approximately 40 individuals were evacuated. The facility was closed for over five days while the cleanup was conducted.

Health Hazard Information

- Mercury can affect you when breathed in and by passing through your skin.
- Exposure to high levels of mercury vapor can irritate the lungs, causing cough, chest pain and shortness of breath.
- Repeated exposure can cause mercury poisoning. Symptoms include tremors, trouble remembering and concentrating, gum problems and changes in mood.
- Mercury exposure can also cause headaches, fatigue, weakness, gastrointestinal disturbance and weight loss.

* mg/m^3 means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

Personal Protective Equipment Guidelines

- Avoid skin contact with mercury. Wear protective gloves and clothing. Safety equipment suppliers/manufacturers can provide recommendations on the most appropriate glove/clothing for your operation.
- Wear chemical goggles and face shield when working with mercury, unless full facepiece respiratory protection is worn.
- When the potential exists for exposures to mercury vapor over 0.05 mg/m^3 (8-hour average airborne exposure) but less than 0.5 mg/m^3, use a National Institute for Occupational Safety and Health (NIOSH) approved half-mask respirator with cartridges specific for mercury.
- If the possibility of exposure above 10 mg/m^3 exists, use a NIOSH approved self-contained breathing apparatus with a full facepiece operated in continuous flow or other positive pressure mode.

Handling and Storage

- Mixtures of mercury with acetylene, ammonia, chlorine dioxide, methyl azide, chlorates, nitrates and hot sulfuric acid can be explosive.
- Store in tightly closed containers in a cool, well-ventilated area away from nickel, calcium, sodium, carbide, lithium, rubidium, copper and combustibles.
- Do not use or store on porous work surfaces (wood, unsealed concrete, etc.).

Spills and Emergencies

- Most environmental emergencies involve spills of hazardous materials that must be reported to the Department of Natural Resources through a 24-hour hotline (573-634-2436). When reporting a spill, callers can also obtain technical assistance regarding response, containment and cleanup of hazardous materials.
- Evacuate persons not wearing protective equipment from the area of the spill.
- Sprinkle the area with sulfur or calcium polysulfide to suppress the mercury.
- Spills should be collected with special mercury vapor suppressants or special vacuums. Kits specifically used to clean up mercury spills are also available.
- Do not clean up mercury spills with a standard household vacuum as the mercury can spread and contaminate other areas.
- Decontaminate and ventilate the area after cleanup is complete.

Disposal Methods

Mercury can be accumulated for sale or for purification and reuse, provided it is stored in an appropriate container. Whatever cannot be saved for recovery or recycling should be handled as hazardous waste. Do not throw broken thermometers or other items containing mercury into regular waste receptacles.

Fire Extinguishing

- Use any means suitable for extinguishing the surrounding fire.
- Wear full protective clothing and a NIOSH approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Mercury undergoes hazardous reactions in the presence of heat and sparks or ignition. Smoke may contain toxic mercury or mercuric oxide.

Emergency First Aid Measures

Eye Contact

- Immediately flush with large amounts of water. Continue for at least 15 minutes, occasionally lifting upper and lower lids.

Skin Contact

- Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

Respiratory

- Remove the victim from the site of the release to fresh air.
- If breathing is difficult, give oxygen. Transfer the victim promptly to a medical facility.

For more information on the Missouri HSEES program, visit the web site at www.dhss.state.mo.us/hsees or contact the HSEES Coordinator at 573-526-1686.

Information for this fact sheet was obtained from the Missouri HSEES Program Five-Year Data Analysis; the Environmental Protection Agency (EPA); the Agency for Toxic Substances and Disease Registry (ATSDR); and the Handbook of Toxic and Hazardous Chemicals and Carcinogens, Third Edition.

This publication was supported by Grant/Cooperative Agreement Number 780955 from ATSDR. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of ATSDR.

THIS FACT SHEET DOES NOT REPLACE THE MATERIAL SAFETY DATA SHEET (MSDS) REQUIRED FOR A HAZARDOUS CHEMICAL UNDER THE OCCUPATIONAL HEALTH AND SAFETY ACT OF 1970 (29 U.S.C. 651 ET SEQ.) AND REGULATIONS PROMULGATED UNDER THIS ACT.